

a frame for supporting said rotor and said stator, said frame having three lead-wire-holes spaced apart from each other in the circumferential direction of said frame; and
a rectifier unit disposed outside said frame, said rectifier unit having a plurality of diodes and a plurality of input terminals respectively connected to said output lead wires, each of said input terminals including a columnar terminal member for holding two of said out lead wires each of which is connected to different one of said diodes; wherein said columnar member is disposed in each of said lead-wire holes, and wherein said columnar terminal members of two of said three input terminals holds two of said output lead wires extended from the same stator winding, and the remainder of said input terminals holds two of said output lead wires respectively extended from different stator windings. --

Cont

--23. An ac generator according to claim 22, further comprising a cooling fan fixed to one end of said rotor near said rectifier unit.--

--24. An ac generator according to claim 22, wherein said rectifier unit has a pair of bridge circuits of diodes respectively connected to said pair of stator windings.--

--25. An ac generator according to claim 22, wherein said rectifier unit comprises a common positive cooling fin and a common negative cooling fin.--

REMARKS

Claims 1, 2, 4-9, 11-17 and 19-25 are pending. By this Amendment, claims 3, 10 and 18 are canceled without prejudice or disclaimer, and claims 1, 5, 7, 9, 14, 16, 17 and 19 are amended. Support for the amendments to the claims may be found throughout the specification and at least at page 6, lines 17-21 and Fig. 5. Thus, no new matter is added.

The attached Appendix includes a marked-up copy of each amended claim (37 C.F.R. §1.121(c)(1)(ii)).

Applicant request acknowledgement of consideration of the references listed on Form PTO-1449, filed on September 7, 2002.

The Office Action rejects the drawings under 37 C.F.R. §1.83(a). Specifically, the Office Action alleges that the diodes being connected to at least two wires as disclosed in claim 18 are not shown. As claim 18 is canceled, the objection is moot. Accordingly, Applicant respectfully requests the objection to the drawings be withdrawn.

The Office Action rejects claims 7, 20 and 21 under 35 U.S.C. §112, second paragraph. The claims are amended in response to the rejection in order to expedite prosecution. Thus, it is requested the rejection be withdrawn. However, Applicant submits that claim 7 as originally presented is clear when interpreted in the context of the specification at least page 9, lines 11-13 and page 9, line 26 - page 10, line 4. Accordingly, Applicant respectfully requests the rejection of claims 7, 20 and 21 under 35 U.S.C. §112, second paragraph, be withdrawn.

The Office Action provisionally rejects claims 1-21 under the judicially created doctrine of double patenting over claims 1-8 of co-pending U.S. Patent Application No. 09/985,826. The rejection is respectfully traversed.

Applicant asserts that claims 1-21 are amended in reply to the provisional rejection. For example, amended claims 1-21 recite "columnar terminal members for holding at least two of said output lead wires", which is not recited in U.S. Patent Application No. 09/985,826. Thus, Applicant respectfully requests the provisional rejection be withdrawn.

The Office Action rejects claims 1-21 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,144,136 to Umeda et al. (Umeda) in view of U.S. Patent No. 5,949,166 to Ooiwa et al. (Ooiwa) and U.S. Patent No. 5,977,669 to Yoshida et al. (Yoshida). The rejections are respectfully traversed.

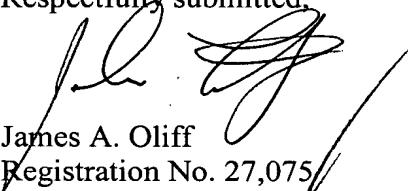
Applicant asserts that none of the applied references, whether considered singularly or in combination, disclose or suggest an ac generator for a vehicle, comprising ... a rectifier unit having a plurality of diodes and a plurality of input terminals respectively connecting

said diodes to said output lead wires, each of said terminals including a columnar terminal member for holding at least two of said output lead wires. Accordingly, Applicant respectfully requests the rejection of claims 1-21 under 35 U.S.C. §103(a) be withdrawn.

In view of the foregoing, reconsideration of the application is requested. It is submitted that the claims as presented herein patentably distinguish over the applied references and fully meets the requirements of 35 U.S.C. §112. Accordingly, allowance of claims 1, 2, 4-9, 11-17 and 19-25 is respectfully solicited.

Should the Examiner believe anything further is desirable in order to place the application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,


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JAO:JWF/djb

Attachments:

Appendix
Petition for Extension of Time

Date: October 21, 2002

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<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
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APPENDIX

Changes to Claims:

Claims 3, 10 and 18 are canceled.

Claims 22-25 are added.

The following is a marked-up version of the amended claims:

1. ~~(Twice-Third)~~ Amended An ac generator for a vehicle, comprising:

a rotor having a shaft;

a stator having a multi-phase stator winding which has a plurality of phase
windings and a plurality of output lead wires for respective phase voltages;

a rectifier unit having a plurality of diodes and a plurality of input terminals
respectively connecting said diodes connected to said output lead wires, each of said input
terminals including a columnar terminal member for holding at least two of said output lead
wires; and

a frame having a wall supporting said stator at one side thereof and said
rectifier unit at ~~another~~ the other side, said wall having a ~~lead-wire hole~~ lead-wire-hole
formed therein at a portion corresponding to one of said input terminals to pass said columnar
terminal member at least two of said output lead wires therethrough to be respectively
connected to said ~~one~~ of said input terminals.

5. (Amended) The ac generator as claimed in claim 4, wherein said rectifier unit
comprises a plurality of three-phase full-wave ~~rectifiers~~ for said plurality of three phase
windings diodes.

7. (Amended) The ac generator as claimed in claim 4, wherein
~~each of said three-phase windings has three phase-windings are disposed in~~
~~said stator to generate three phase voltages which are close in phase to each other,~~
~~said wall has three lead-wire-holes each of which has a bundle of said output~~
~~lead wires respectively extending from said pair of three phase windings, and~~
~~a pair of said output lead wires in one of said columnar terminal members~~
~~inserted in said lead wire-holes is extended from those of said phase windings that are close~~
~~in phase to each other in said bundle are close to each other in phase.~~

9. (Twice Thrice Amended) An ac generator for a vehicle, comprising:
a multi-poled rotor;
a stator having a multi-phase stator winding which has output lead wires for multi-phase output voltages, respective two of said output lead wires forming a plurality of bundles;
a full-wave rectifier unit having a plurality of diodes and a plurality of input terminals disposed to correspond to said bundles and to respectively connect said diodes respectively connected to said output lead wires, each of said input terminals including a columnar terminal member for holding one of said bundles; and
a frame having a wall supporting said stator at one side thereof and said rectifier unit at another side, said wall having a plurality of lead wire-holes formed therein and positioned to correspond to said input terminals of said rectifier unit to pass said columnar terminal member output lead wires therethrough to be respectively connected to said input terminals.

14. (Amended) The ac generator as claimed in claim 13, wherein
~~said three phase windings are disposed in said stator to generate three phase voltages which are close in phase to each other; and~~

each of said bundles has a pair of said output lead wires which are extended from those of said phase-windings close in phase to each other.

16. (Twice Amended) An ac generator for a vehicle, comprising:

a rotor having a shaft;

a stator having a multi-phase stator winding, said stator winding having a plurality of phase-windings and a plurality of output lead wires for respective phase voltages; a rectifier unit having a plurality of diodes and a plurality of input terminals respectively connecting said diodes connected to said output lead wires, each of said input terminals including a columnar terminal member for holding at least two of said output lead wires; and

a frame having a wall that supports said stator at one side thereof and supports said rectifier unit at another side, said wall having a plurality of ~~lead wire holes~~ lead-wire holes formed therein at portions corresponding to said input terminals to pass said columnar terminal member ~~output lead wires~~ therethrough to respectively connect to said input terminals.

17. (Twice Amended) An ac generator according to claim 1, wherein each of said plurality of input terminals is positioned at an outer periphery of said rectifier unit, and wherein each input terminal extends from said rectifier unit toward respective wire holes.

19. (Twice Amended) An ac generator according to claim 3, wherein each of said columnar terminal members has a pair of passages for supporting each of said at least two wires, each of said passages opening toward a respective lead wire hole for allowing ease of insertion of each lead wire into a respective one of said passages.